

PRINT NAME _____
Version 1

INSTRUCTOR _____

Circle your answer on the sheet and also mark your answer on the answer sheet. If you change your answer change in both places.

1) Simplify the expression $\sqrt{\frac{81x^6}{y^{-8}}}$

- A) $9x^3y^4$ B) $9x^3y^{-4}$ C) $9x^{-3}y^4$ D) $9x^{-3}y^{-4}$ E) $1/9(x^{-3}y^{-4})$
 AE) $81x^6y^4$ BE) $81x^6y^8$ CE) $9x^{12}y^{16}$ DE) none of the above

2) Rationalize the denominator $\frac{1}{\sqrt{x+2}}$

- A) $\frac{\sqrt{x-4}}{x-16}$ B) $\frac{\sqrt{x+2}}{x-4}$ C) $\frac{\sqrt{x-2}}{x-4}$ D) $\frac{\sqrt{x+4}}{x-16}$
 E) $\frac{x-2}{\sqrt{x-4}}$ AE) $\frac{\sqrt{x-4}}{x-16}$ BE) $\sqrt{x-4}$ CE) $\sqrt{x-2}$
 DE) none of the above

3) Solve for x, $x^2 - 8 = 0$

- A) $\pm 7^{1/2}$ B) 0 C) $\pm 8^{1/2}$ D) ± 8 E) $\pm 2^{1/2}$
 AE) $1 \pm 8^{1/2}$ BE) does not exist
 DE) none of the above

4) Simplify $\frac{f(x+h) - f(x)}{h}$, given $f(x) = 3x - 1$

- A) 0 B) 1 C) 2 D) 3 E) 4
 AE) 3x BE) 2x CE) 4x DE) none of the above

5) Let $g(x) = (2x - 3)^2$. Then $g(x + 1) =$

- A) $(2x - 3)^2 + 1$ B) $(2x - 2)^2$ C) $(2x - 3)^2$
 D) $(2x - 1)^2$ E) $(2x - 3)^2 + x + 1$
 AE) $(2x - 5)^2$ BE) $(2x - 3)^2 + x - 1$
 CE) $(2x - 3)^2 - x + 1$ DE) none of the above

6) Evaluate the limit $\lim_{x \rightarrow 1} (5x^3 - 2x + \sqrt{x}) =$

- A) 0 B) ∞ C) does not exist D) 1
 E) 2 AE) 5 BE) 3 CE) 4
 DE) none of the above

7) Evaluate the limit $\lim_{x \rightarrow 2} \frac{5x^2 - 20}{x - 2}$

- A) 0 B) ∞ C) 20 D) $-\infty$
 E) 2 AE) 12 BE) 18 CE) -20
 DE) none of the above

8) Evaluate the limit $\lim_{x \rightarrow \infty} \frac{5x^3 - 2}{7 - 2x + 10x^3} =$

- A) 0 B) ∞ C) 2 D) $-\infty$
 E) $-2/7$ AE) $5/7$ BE) $1/2$ CE) -20
 DE) none of the above

9) Which of the following functions is a polynomial function?

- i) $\frac{4x - 2}{5}$ ii) $x^7 + 4x^5 - 9$ iii) $5x^{3/2} - 4x$
 iv) $\frac{7x - 6}{2x + 9}$ v) $|4x - 8x^3 + 2|$

- A) only i B) only ii C) only iii
 D) only iv E) only i, ii AE) only i, iii, v
 BE) all, but iv CE) all DE) none of the above

10) Find the domain of $[(x - 2)(x + 1)]^{1/2}$

- A) $x > 2$ B) $x > 1$ C) $x > 2$ or $x < -1$
 D) $x \geq 2$ or $x \leq -1$ E) $x \geq 0$
 AE) all real x BE) $x \geq 1$ CE) $-1 \leq x \leq 2$
 DE) none of the above

11) A company has a fixed cost of \$30,000 and a production cost of \$6 for each unit it manufactures. A unit sells for \$10.

What is the cost function?

- A) 30,000 B) $30,000 + 6x$ C) $10x$ D) $30,000 - 4x$
 E) $4x - 30,000$ AE) $10x + 30,000$ BE) $30,000 + 6x$ CE) $10x + 6x^2$
 DE) none of the above

12) Evaluate the limit $\lim_{x \rightarrow 0^+} \frac{3}{x} =$

- A) 0 B) ∞ C) 3 D) $-\infty$
 E) 2 AE) 12 BE) 18 CE) does not exist
 DE) none of the above

PRINT NAME _____
Version 2

INSTRUCTOR _____

Circle your answer on the sheet and also mark your answer on the answer sheet. If you change your answer change in both places.

- 1) Evaluate the expression $(2x - 3)^2$
 A) $4x^2 - 9$ B) $4x^2 - 12x + 9$
 C) $4x^2 - 12x - 9$ D) $2x^2 - 12x + 9$
 E) $9x^2 + 12x + 4$ AE) $9x^2 - 4$
 BE) $4x^2 + 12x + 9$ CE) $4x^2 + 6x + 9$
 DE) none of the above
- 2) Factor the expression $2x^2 + 16x + 32$ **completely**
 A) $(2x - 4)^2$ B) $(2x + 4)^2$ C) $(x - 4)^2 + 2$
 D) $2(x - 4)^2$ E) $2(x - 1)(3x + 1)$ AE) $2(x + 4)^2$
 BE) $(2x + 8)^2$ CE) cannot be factored
 DE) none of the above
- 3) Simplify $\frac{f(x+h) - f(x)}{h}$, given $f(x) = 2 + 3x$
 A) 0 B) 1 C) 2 D) 3 E) 4
 AE) 3x BE) 2x CE) 4x DE) none of the above
- 4) Let $f(x) = 6x - 3$, and $g(x) = x^2$, find $f \circ g(x)$
 A) $6x^2 - 3$ B) $(6x - 3)^2$ C) $x^2 + 6x - 3$
 D) $x^2 - 6x + 3$ E) $36x^2 - 9 + x^4$ AE) $6x^3 - 3x^2$
 BE) 6 CE) $6/x - 3/x^2$ DE) none of the above
- 5) Evaluate the limit $\lim_{x \rightarrow -3} \frac{x^2 - 9}{x + 3}$
 A) 0 B) ∞ C) 12 D) $-\infty$
 E) -6 AE) 9 BE) 18 CE) -20
 DE) none of the above
- 6) Evaluate the limit $\lim_{x \rightarrow \infty} \frac{8x^4 - x}{5x - 2x^4} =$
 A) 0 B) ∞ C) 8/5 D) $-\infty$
 E) 1/2 AE) -4 BE) 1/5 CE) does not exist
 DE) none of the above
- 7) Evaluate the limit $\lim_{x \rightarrow 2^+} |7x - 2x^4 + 3| =$
 A) 3 B) ∞ C) 15 D) 0 E) -15
 AE) 49 BE) 21 CE) 43 DE) none of the above
- 8) Find the domain of $(x - 2)/(x + 1)$
 A) $x > 2$ B) $x > 1$ C) $x > 2$ or $x < -1$
 D) $x \geq 2$ or $x \leq -1$ E) $x \neq 0$ AE) all real x
 BE) $x \neq -1$ CE) $-1 \leq x \leq 2$
 DE) none of the above

9) Which of the following functions is continuous at $x = 1$

i) $x + 4$ ii) $|5x - 3|$ iii) $4x^3 - 7$
 iv) $\begin{cases} x - 3 & x > 1 \\ 0 & x \leq 1 \end{cases}$ v) $\sqrt[3]{6x - 2}$

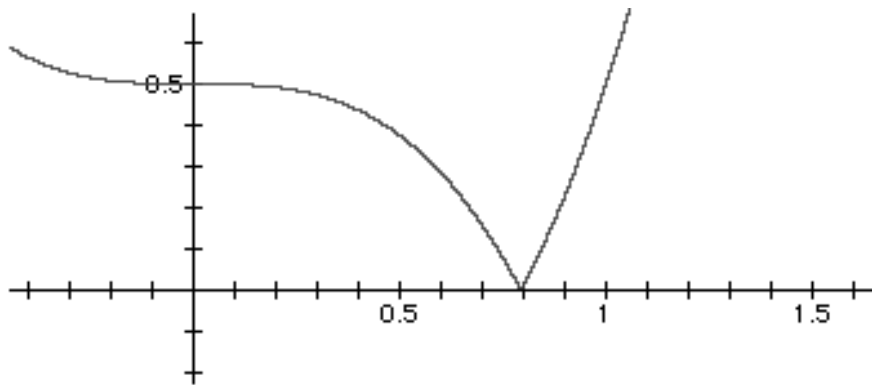
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 D) only iv E) only i, ii AE) only i, iii, v
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10) A company has a fixed cost of \$30,000 and a production cost of \$6 for each unit it manufactures. A unit sells for \$10.

What is the profit function?

- A) 30,000 B) $30,000 + 6x$ C) $10x$ D) $4x - 30,000$
 E) $30,000 - 4x$ AE) $10x + 30,000$ BE) $30,006x$ CE) $10x + 6x^2$
 DE) none of the above

11) Evaluate the limit at $x = 1$ of the function with the following



graph

- A) 0 B) 0.75 C) 0.5 D) does not exist E) ∞
 AE) $-\infty$ BE) 1 CE) 7
 DE) none of the above

12) Solve for x , $x^2 - x - 6 = 0$

- A) 3 B) 2 C) -3 D) -2
 E) 3, -2 AE) -3, 2 BE) 0 CE) cannot be solved
 DE) none of the above